Part C: Detailed network strategies for 2031

5. Public transport network

Signature Projects – Rail

SP1 **Cross River Rail (planning under way)**
A proposed new north-south rail line in Brisbane's inner city, including a new tunnel under the Brisbane River and four new underground inner city stations.

SP2 **Rail revolution**

UrbanLink – higher frequency, all stops services all day seven days a week on services inbound from Springfield, Redbank, Ferny Grove, Strathpine, Shorncliffe, the Airport, Manly and Loganlea. This style of service would also run between Coomera and Coolangatta on the Gold Coast and between Beerwah and Maroochydore on the Sunshine Coast.

ExpressLink – transform outer suburban rail services to provide faster travel times and longer trains from Ripley, Ipswich, Ormeau, Kippa-Ring and Flagstone.

CoastLink – fast express rail service from Brisbane to the Gold Coast and Brisbane to the Sunshine Coast, with a travel time of about one hour.

SP3 **Brisbane subway**
Toowong to Newstead (first section) providing a high capacity, high-frequency, distributor system connecting central Brisbane destinations and distributing passengers from the bus and rail network across the intensely developed core of inner Brisbane.

SP4 **Gold Coast light rail**
Light rail constructed from Helensvale to Broadbeach, with an extension from Broadbeach to Coolangatta and the Gold Coast Airport.

SP5 **North-west rail line**
Construct additional rail from Strathpine to Alderley servicing communities in Brisbane's north west and supporting UrbanLink, ExpressLink and inter-city services.

Signature Projects – Bus

SP6 **Eastern and Northern Busways and on-road bus priority**
Construct Eastern Busway to Coorparoo and Northern Busway to Kedron and continue planning to extend busways to Capalaba and Bracken Ridge respectively with interim on-road bus priority treatments.

SP7 **UrbanLink bus services and HOV network**
High frequency UrbanLink bus services, supported by priority measures on strategic corridors. Redesign of the bus network to provide effective feeder services to UrbanLink public transport corridors.

SP8 **Western bus priority corridor**
An UrbanLink bus service with on-road bus priority from Kenmore to the city.

SP9 **CoastConnect**
A UrbanLink bus service with priority from Maroochydore to Caloundra via Mooloolaba and Kawana Town Centre.

Existing public transport projects

Significant investment is proposed under the *SEQ Infrastructure Plan and Program 2010* (SEQIPP) and the *Transport Plan for Brisbane 2008–2026* including:

- additional trains
- expanding the bus fleet
- expanding the total CityCat fleet to 19 vessels by 2012.

In conjunction with these fleet upgrades investment in fixed infrastructure includes:

- capacity expansion on the major rail lines (Gold Coast, North Coast and western lines)
- new rail line from Petrie to Kippa-Ring
- Gold Coast light rail project from Gold Coast Health and Knowledge Precinct to Broadbeach
- Northern Busway from Windsor to Kedron
- Eastern Busway from Buranda to Coorparoo
- bus lanes and bus access facilities on the road network across SEQ
- funding support to assist local governments to ensure 100% of bus stops comply with standards required under the *Disability Discrimination Act 1992* by 2022.

Public transport delivers many community benefits including reduced emissions, government savings by avoiding the need to build more roads and household savings by reducing the need to run cars. The government subsidises public transport to ensure a good level of service is provided across the region's cities, to reduce car dependency and protect environmental quality.

The Queensland Government's TransLink Transit Authority provides a single point of contact for planning and managing services, providing passenger information and receiving feedback on urban public transport in SEQ. The TransLink network includes:

- rail services operated by Queensland Rail under contract to TransLink Transit Authority
- buses run by private sector contractors and Brisbane Transport
- ferries operated by Brisbane City Council.

TransLink is working with state and local government partners and the private sector to ensure all the major urban areas of SEQ have an integrated network of public transport services that is easy for people to understand and use.

The growing public transport task

The draft *Connecting SEQ 2031* establishes a target of doubling the share of trips made on public transport by 2031.

This will see public transport's share of travel in SEQ increase from 7% to 14% of all trips – an average growth rate of 4.7% per year from 2006 to 2031.

The past five years have seen public transport patronage growing at 9% per year (figure 5.3), indicating a target based on 4.7% growth a year is achievable, though it will be difficult to sustain over a much longer period of two decades.

While shifting more trips to public transport will support the transport goals of the draft *Connecting SEQ 2031*, it means much more investment in public transport infrastructure and services will be needed. However, it will also mean less expenditure on costly upgrades to road corridors for private cars.

Under the multi-modal investment program proposed by the draft *Connecting SEQ 2031*, daily rail passenger kilometres are forecast to increase from four million passenger kilometres in 2006, to more than 13 million by 2031.

By comparison, bus passenger kilometres would increase from three million to seven million per day in the same period[25].

Figure 5.1 – daily public transport

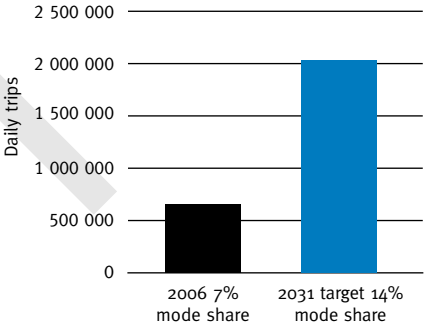


Figure 5.2 – capacity comparison: public transport vs private vehicle

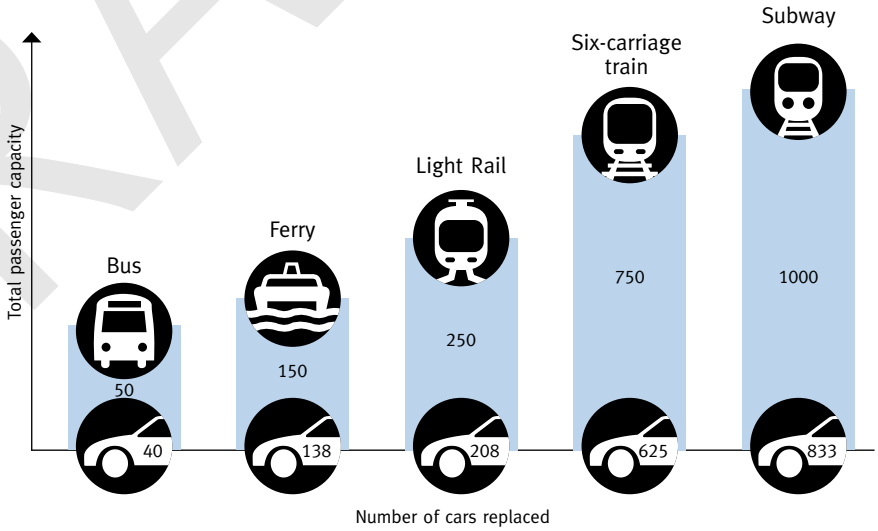
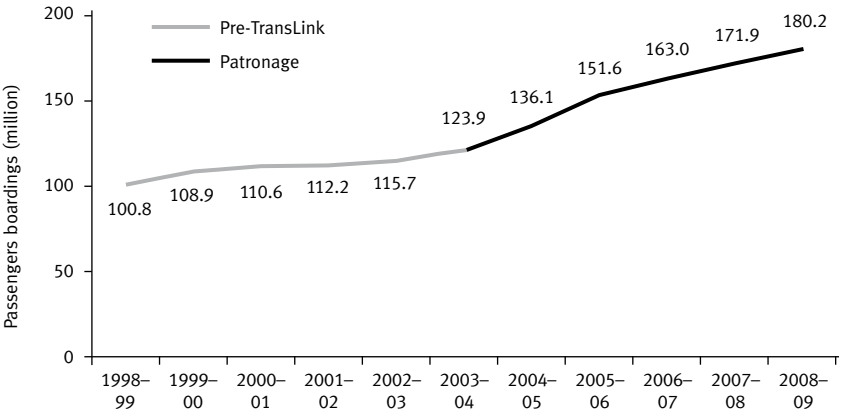


Figure 5.3 – patronage on public transport in SEQ



25 Department of Transport and Main Roads 2009 *Transport Modelling for Connecting SEQ 2031*

Overarching principles for an integrated public transport network

PT 1 Design **a system that is easy to use and understand**

PT 2 Provide a **quality journey** from the decision to use public transport, to arrival at the destination

PT 1 A system that is easy to use and understand

The draft *Connecting SEQ 2031* establishes that public transport system patronage will almost triple by 2031.

Adding more capacity needs to be done in a way that simplifies the network and improves the efficiency and overall attractiveness of the system.

In major movement corridors increasing demands will require high-capacity public transport. Rail is able to carry the highest volumes of passengers, and is the most cost-effective solution where demand is high and a quality service is required.

Future investment will establish rail as the backbone of the network. An expanded rail network will be supported by bus services to fill the gaps and to link communities not serviced by rail to the rail network.

PT 2 A quality public transport journey

A public transport trip has many dimensions, from the decision to use the service to arrival at the destination as shown in figure 5.4.

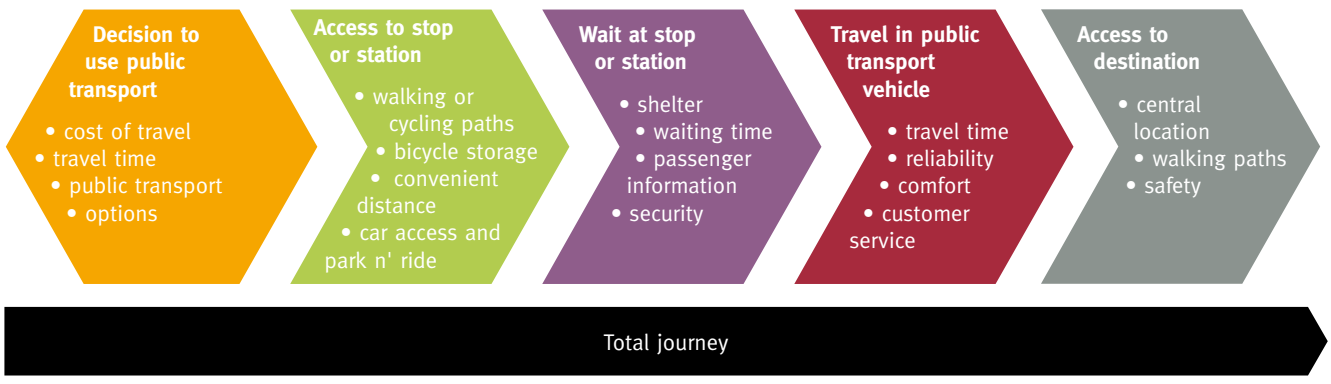
Public transport passengers should be able to expect quality service and facilities at all points of the trip. While some aspects may work well, they can be undermined by poor quality facilities or service in other areas.

For example, the benefits of improved bus travel times from major investment in infrastructure can be undermined by lack of shelter or long boarding delays at stops, poor customer service from a bus driver, or inconsiderate behaviour from other passengers.

The ability to easily access stops and stations can also impact on a passenger's experience.

Planning for the future public transport system needs to adopt a people-centred approach which pursues quality in all aspects of the system, where the customer's perspective is considered from the moment they consider making a trip, to arrival at their destination.

Figure 5.4 – a quality public transport journey ... from decision to destination



Supporting principles for an integrated public transport network

PT 3 Develop a network that operates at a good level of service **all day**

PT 4 Provide a clear network of **high-frequency UrbanLink bus and rail services** where passengers can 'turn up and go'

PT 5 Use **'trunk and feeder' design** in major cities to provide for anywhere to anywhere travel

PT 6 Encourage people to **access public transport by walking and cycling**, while recognising the need for car feeder roles in some markets

PT 7 Use **fares products** to encourage people to shift from car transport, and to manage and direct passenger growth

PT 3 An all day network

Traditional approaches to the delivery of public transport services focused on providing for weekday peak-period journeys to and from work. Off-peak and weekend services were run at much lower frequencies, meaning the majority of the fleet and driver resources were only utilised for a few hours of the day.

Modern lifestyles require more diverse travel options, with work trips now comprising only one-fifth of all travel. To better service modern travel patterns and make public transport an attractive travel choice for different trip types, not just travel to work, the future public transport network will be re-designed as an all-day network.

The majority of services will need to operate all day, seven days a week. During peak periods, extra supplementary services like commuter 'rockets' will provide for the higher passenger volumes.

PT 4 UrbanLink 'turn up and go' rail and bus network

TransLink will progressively roll out a network of high-frequency UrbanLink services on strategic rail, light rail and bus routes. This UrbanLink 'trunk' network will operate at headways of 15 minutes or better, seven days a week. This will allow passengers to simply 'turn up and go', without needing to consult a timetable.

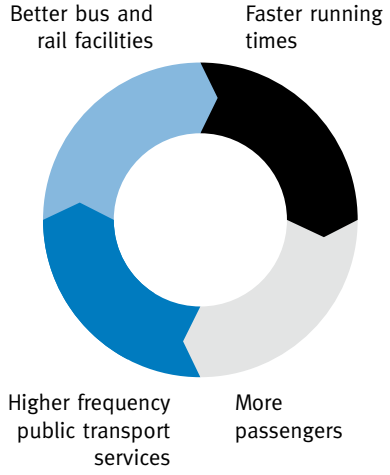
Delivery of a UrbanLink network establishes a self-reinforcing cycle whereby the attraction of more passengers allows a further increase in frequencies. Higher passenger volumes also make it viable to invest in infrastructure improvements to support faster travel times, which in turn also attract more passengers.

The success of a high-frequency network is already proven in Brisbane, with the BUZ (bus upgrade zone) routes, introduced by Brisbane Transport from 2002, resulting in increases in both peak and off-peak passengers.

The UrbanLink network: 'turn up and go'

- a connected trunk network of passenger rail, light rail and high-frequency buses
- services run along major corridors to connect activity centres and residential communities
- frequency of 15 minutes or better off-peak, 10 minutes or better during the peak
- high-frequency all day (at least 6am to 9pm), seven days per week
- quality shelters and passenger information
- operate on rail, busways or arterial roads with supporting bus priority measures to minimise impacts of traffic congestion
- passengers consult a simplified high-frequency network map with no need for a timetable
- a doubling of the proportion of SEQ residents within walking distance of 'turn up and go' services by 2031..

Figure 5.5 – UrbanLink services establish a cycle that continually builds patronage



PT 5 Trunk and feeder design

As the public transport system expands, moving to 'trunk and feeder' design for public transport services will improve services and make it easy to understand for passengers. Under trunk and feeder design, the UrbanLink bus and rail routes are supported by local bus feeder services to provide easy connections to all parts of the city.

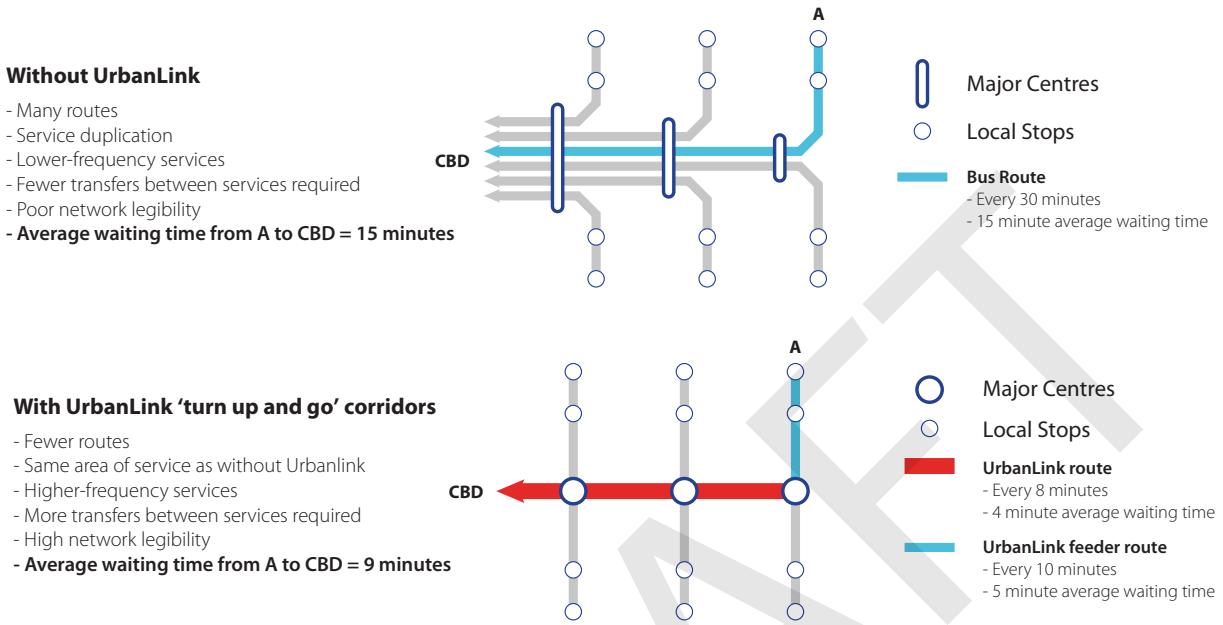
The alternative is the traditional 'single seat' bus planning approach which attempts to provide a large range of services connecting all parts of the city to its centre. In a large city where there are thousands of destinations to be serviced, adopting a 'single seat' approach results in a complicated service network with low frequencies on all routes.

Figure 5.6 (p.46) illustrates how 'trunk and feeder' network design allows demands to be consolidated, enabling high service frequencies on the trunk routes. Adopting this design for the future network will support delivery of the UrbanLink 'turn up and go' services, with shorter wait times on trunk routes and a better level of service on feeder routes. Strategic transfer points will be located at transit hubs (see Part B, priority for action 1), allowing passengers to access destinations anywhere in the city.

Existing single seat services will operate largely unchanged, as trunk and feeder design is applied to new services and service upgrades as demand grows.

Improving the quality and efficiency of key public transport stations will be important to support the move towards a 'trunk and feeder' network design. The TransLink Transit Authority has a program for the development and upgrade of stations, which includes identifying the role of stations in a formal hierarchy to inform the station design and facilities needed.

Figure 5.6 - trunk and feeder system



PT 6 Access to public transport

Cycling and walking

Increased walking and cycling to public transport will expand the coverage of sustainable transport options right to the door. It will also deliver environmental and health benefits and reduce the need for expensive, space-consuming park 'n' ride facilities.

Major initiatives to encourage walking and cycling to access public transport include:

- including information on walking and cycling in the TransLink trip planning tool to allow passengers to select routes based on their level of skill, confidence and ability
- including end-of-trip facilities at strategic rail and busway stations to encourage cycling and walking
- providing an additional 20 000 bicycle parking spaces at rail stations across the network by 2031 (about 250 spaces per station).

Kiss 'n' ride

Passenger set down or kiss 'n' ride provides an important means of access for people who are unable to walk or cycle to catch public transport. Providing kiss 'n' ride facilities for people with mobility difficulties encourages people to use public transport rather than drive all the way to their destination. Rail and busway stations will be designed to ensure kiss 'n' ride facilities are in place at appropriate locations, providing a safe zone to pick up and drop off passengers.

Park 'n' ride

Park 'n' ride is an important element of the public transport network that links passengers from low-density areas not directly serviced by public transport to the trunk system. It is not a preferred option for people who can use other sustainable modes like feeder bus, walking or cycling to access the trunk system.

The draft *Connecting SEQ 2031* proposes 20 000 additional park 'n' ride spaces be provided by 2031, by delivering an additional 750 spaces per year.

The Translink Transit Authority already has a program to deliver 2600 additional park 'n' ride spaces between 2009 and 2012, beyond the 750 per year planned to 2031.

Park 'n' ride facilities will be located away from centres and in areas where roads are less congested, in line with the following conditions:

- generally 10 kilometres outside the Brisbane CBD and 1–3 kilometres outside other activity centres identified in the *SEQ Regional Plan*
- away from areas identified for transit oriented development, transit hubs or identified as priority transit corridors (see part D for locations of transit hubs and priority transit corridors).

Commercial opportunities for a park 'n' ride including co-locating daytime park 'n' ride with night time commercial uses will also be explored.

PT 7 Fares products

Increasing use of the *go* card for fare collection on bus services will reduce travel times. Using a *go* card cuts average individual boarding time from around 11 seconds to just three. This translates to a time saving of up to seven minutes on an average bus service. In conjunction with the roll out of the high-frequency public transport network some peak period services will only accept *go* card as fare payment.

Off-peak price discounting will encourage more passengers to travel in the shoulder and off-peak. This will help manage the growth in peak demand and the requirement for costly infrastructure investment to cater for peak periods. Other fare products to be considered include pre-packaged tourist tickets and employer-funded *go* card credits as part of salary packages.

2031 rail network services plan

The Integrated Regional Transport Plan released in 1997 saw the establishment of the TransLink integrated public transport network with one ticket, and no transfer penalties across all public transport modes. It ushered in Brisbane's busways which are recognised internationally and across Australia as world's best practice in bus rapid transit systems. The busways have proved extremely popular with the public, carrying more passengers each day than all the city's major motorways.

The busway system will be completed over the next 20 years. As the region enters its next phase of maturity, and continues to grow in size, the focus will shift to modernising the rail system, and expanding it to accommodate a much larger task.

Why a strong focus on rail?

Connecting SEQ 2031 proposes significant investment in rail. Rail provides:

- increased efficiency of passenger movements by using the highest capacity service type; as demand increases rail offers the lowest cost per passenger space
- greater support for a longer term generational change towards compact urban form; rail has the ability to attract in fill development within walking distance of stations
- a major encouragement to shift away from car transport; rail offers complete segregation from road congestion
- reduced reliance on oil-based fuels; passenger rail in SEQ is fully electrified – there are no equivalent forms of bus power
- reduced emissions of greenhouse gases; emissions from trains only occur at the electricity generation source.

The draft *Connecting SEQ 2031* proposes to transform the way services operate on the current network as well as expand the reach of the network. The plan also highlights the need for new types of rail technology including light rail and the Brisbane subway.

The rail strategy proposed by *Connecting SEQ 2031* has the following features:

- Cross River Rail will provide a new rail line in the inner city including a new river crossing and new inner city train stations. This will help transform the existing rail network, making a revamp of the way services operate possible:
  - **UrbanLink** rail services with higher capacity trains operating inbound from Redbank, Strathpine, Loganlea, Ferny Grove, Manly, Springfield, Shorncliffe and the Airport
  - **ExpressLink** services from Ipswich, Cleveland, Beenleigh and Caboolture
  - **CoastLink** services from Brisbane to the Gold Coast and Sunshine Coast
- constructing a new rail line between Alderley and Strathpine using the predominantly government-owned North West Transport Corridor
- expanding the reach of the rail network with extensions to Maroochydore, Coolangatta, Kippa-Ring, Springfield, Ripley and Flagstone
- extending the proposed light rail on the Gold Coast from Broadbeach to Coolangatta
- a separate subway system from Toowong to West End to Newstead/ Bowen Hills, with extensions to Hamilton Northshore/Airport Village and Bulimba possible in the longer term.

The 2031 passenger rail network is illustrated in map 5.7.

Cross River Rail – a catalyst for the transformation of the rail network

The proposed Cross River Rail is a major project that will allow a transformation of the way rail services operate in SEQ. Progress of Cross River Rail can be followed online at www.crossriverrail.qld.gov.au

In 2008 the *Inner City Rail Capacity Study* identified a need for Cross River Rail due to a bottleneck in the inner city through Central and Roma Street stations. This bottleneck restricts the number of additional rail services that could be added to meet growing passenger numbers.

More than 53 000 people per day currently travel into the inner city by train between 7am and 9am[26]. Rail investigations conducted for *Connecting SEQ 2031* estimated this number will increase to be between 70 000 and 80 000 by 2016, and between 150 000 and 200 000 by 2031.

The peak period capacity of the rail system would need to expand to about four times its current capability by 2031.

Delivery of Cross River Rail, combined with existing rail infrastructure, new service initiatives and higher capacity trains will make it possible to move up to 240 000 people into the inner city during the two-hour peak.

Cross River Rail is a proposed new north-south rail line in Brisbane's inner city, including a new tunnel under the Brisbane River and four new underground inner city stations. This will mean more frequent trains and better services for all of south east Queensland's rail users.

The benefits of Cross River Rail to the SEQ rail network include:

- significantly increases the capacity of the inner city rail network
- makes possible to run both **UrbanLink** and **ExpressLink** services
- provides the ability for higher capacity, nine-car trains to stop in the Brisbane CBD
- allows for increased frequency of **CoastLink** services between Brisbane and the Sunshine and Gold Coasts
- provides additional freight rail capacity between Salisbury and the Port, allowing more freight to be carried on rail to and from the Port.

26 Queensland Rail *2008 Passenger Load Survey*

Rail revolution

The passenger rail system in SEQ will be completely overhauled to provide a modern high capacity network that will mean for some passengers rail transport will be quicker and more reliable than driving a car.

The improvements will be coordinated and shaped through a 'rail revolution' program that combines short and longer term measures including improved signalling, new styles of trains and transforming the way train services operate.

UrbanLink rail (high frequency)

UrbanLink services will start with the delivery of Cross River Rail and will start the transformation of the existing rail network. This transformation will be a catalyst for major regeneration and higher density development along rail corridors.

UrbanLink services will have higher frequencies, boosting capacity of the rail network. Services will use higher capacity trains with more doors to provide fast boarding and alighting at stations.

Transformation of the rail network to deliver UrbanLink services is underpinned by proposals to deliver Cross River Rail and the acquisition of new rollingstock designed with more doors for the shorter distance services.

Commencing delivery of UrbanLink services on sectors of the existing rail network in Brisbane is the highest priority for passenger rail, with many parts of the network close to capacity. In the longer term, local inner suburban services will also operate on the Gold Coast rail line between Coomera and Coolangatta and the new Sunshine Coast rail line from Beerwah to Maroochydore.

Delivery of UrbanLink services will include station upgrades to accommodate higher capacity trains. There will be a strong focus on integration with surrounding communities and supporting opportunities for urban regeneration.

ExpressLink

Alongside the creation of UrbanLink, the remaining sections of the greater Brisbane rail network would be operated as ExpressLink. The services will use existing trains with services starting at the end points of the greater Brisbane rail network. The 2031 end points of the greater Brisbane suburban express network are expected to be Ripley (via Ipswich), Kippa-Ring (via Petrie), Flagstone (via Salisbury), Ormeau, Caboolture and Cleveland.

The ExpressLink network will operate much the same as express services operate today, running all stops to a change point (where UrbanLink services terminate), then stopping only at major transfer locations and activity centres. Delivery of ExpressLink services will occur in parallel with delivery of UrbanLink services. Consistent with the principle to 'simplify the network' there would be one operating pattern all day for ExpressLink services (that is, they would run express both in the peak and off-peak).

CoastLink

The proposed 2031 rail network includes CoastLink services, stopping only at major strategic locations, to connect the Gold Coast and Sunshine Coast to Brisbane in about one hour. The achievement of a reliable one hour inter-city travel time to the growing coastal centres will:

- reinforce the *SEQ Regional Plan* principal activity centres as key locations for business with high-quality connections to the Brisbane CBD and Brisbane Airport, supporting business growth at these centres
- reduce long-distance private vehicle travel due to increased public transport patronage achieved by the new services.

This approach is similar to the European model of smaller cities with their own commuter systems, with connections between each city. For SEQ, rail investment must be strongly matched to economic development, land use and urban development policies to ensure that the necessary jobs are created in the growing coastal cities.

Providing fast CoastLink services also minimises the need for investment in motorway and highway upgrades to cater for regional movements.

Benefits of UrbanLink rail

- no need to consult a timetable, with frequent 'turn up and go' services
- easier for passengers to understand with the same stopping patterns on all services
- will introduce high-capacity trains with more doors and standing areas
- will double the capacity of the current network.

Benefits of ExpressLink

- fast, express-running services (competitive or faster than car) from outer suburbs to inner Brisbane
- makes the network easy for passengers to understand
- allows for transfers at key stations to access multiple destinations
- encourages people to travel off-peak.

CoastLink

- express services from Brisbane to Gold Coast and Brisbane to Sunshine Coast (both in about one hour travel time)
- an attractive inter-city peak and off-peak service frequency
- complete track realignment and duplication from Beerburrum to Landsborough
- Sunshine Coast Line from Beerwah to Maroochydore
- Gold Coast line extended to Coolangatta
- new rail lines proposed in Brisbane to address regional rail network capacity (for example, Cross River Rail and construction of rail from Alderley to Strathpine)
- upgraded and realigned track Kuraby to Beenleigh
- inter-urban trains capable of higher speed operations (160 km/h), provided with on-board wireless internet and other business facilities.

New Brisbane subway

By 2031 there will be 2.4 million trips per day in inner Brisbane (within about five kilometres from the CBD), up from about one million in 2006. A subway system for Brisbane will support the expected growth and expansion of the inner city.
This will be a new separate network, with separate operations to existing rail infrastructure. The London underground and New York subway are well known examples of this style of rail operation.

The Brisbane subway will provide a high-capacity, high-frequency distributor system connecting central city destinations and linking passengers from the bus and rail networks to destinations not within a comfortable walk of existing stations.

The priority corridor for delivery by 2031 will be from Toowong to West End to Bowen Hills/Newstead. This corridor would be under the CBD and intersect with existing rail and busway stations. Longer-term opportunities to expand the Brisbane subway could include:

- Bowen Hills/Newstead to Airport Village via Hamilton North Shore
- Newstead to Bulimba
- potential conversion of some sections of Brisbane's busway network to increase public transport capacity.

Light rail on the Gold Coast

The draft *Connecting SEQ 2031* enhances the role of light rail on the Gold Coast, supporting extensions beyond the current project from Gold Coast Health and Knowledge Precinct to Broadbeach.

Light rail will provide high-frequency services to transform the coastal corridor from Helensvale to Coolangatta as well as act as a catalyst for land use change. Further east-west extensions of light rail on the Gold Coast will be investigated as passenger demand builds on buses.

Initiatives supporting the 2031 rail network

As well as investing in new rail infrastructure, it is important to ensure services are being operated to optimise the use of rail infrastructure. These initiatives include:

- improving rail sectorisation following the delivery of Cross River Rail to improve capacity and reliability which will allow transformation of the network and provision of UrbanLink and ExpressLink services
- increasing the frequency of shoulder and contra-peak services to encourage peak demand to spread over a longer period
- purchasing higher capacity rollingstock
- removing open level crossings as rail service frequencies increase.

Signalling upgrades

The existing rail network is equipped with a variety of signalling technologies that have been deployed since the mid-1970s. The signal system has an overall maximum capacity of a single rail line limited to no more than 20 trains per hour per line, or a train every three minutes.

Improving the signalling system by modernising it and adding more circuitry and signals can allow for more trains per hour to utilise the broader network. This could feasibly achieve overall system headway of 24 trains per hour per line at a relatively low cost, allowing for four more trains per hour to use each line.

Advanced signalling technology would allow for communications based signalling which will improve safety and can also be configured to reduce headways substantially and therefore increase line capacity. A higher capacity of 30 trains per line could be achieved across the network, though at a higher cost.

Investigations as part of the rail revolution will confirm the best signals upgrade strategy based on achieving 24, and as much as 30 trains per line per hour over the next 20 years.

Brisbane subway features

- fully segregated operations, not impacted by incidents or congestion on the passenger rail network (or road network)
- lower infrastructure costs than suburban rail tunnels
- high capacity 20 000-40 000 passengers/hour/direction
- automatic train protection with high reliability and improved safety
- ultra high-frequency (headway to 90 seconds)
- closely spaced stations for higher accessibility
- integration with existing rail and bus stations.

Benefits of light rail

- can mix safely with pedestrians and general motor traffic
- able to carry 160–300 passengers per vehicle, safely and comfortably
- light and airy inside with space for luggage and wheelchairs.
- light rail vehicles can carry 10 000 passengers per hour and 100 000 passengers per day
- the length and capacity of light rail vehicles can be increased to meet the demands of the Gold Coast's fast-growing population.

Map 5.1 – indicative 2031 passenger rail services plan

Transport and Main Roads, Connecting SEQ 2031 – An Integrated Regional Transport Plan for South East Queensland, 2010

2031 bus networks and services

During the past 10 years, Brisbane's bus network has been undergoing a transformation, with:

- three major busways completed and two more under construction
- high-frequency BUZ services rolled out across Brisbane.

The draft *Connecting SEQ 2031* plans to continue this transformation and apply it across SEQ. An important factor will be providing priority for buses on congested roads to deliver frequent services with reliable travel times.

Transforming and expanding the bus network

The network planning principles identified in this chapter will underpin the design of new bus networks as service levels within existing urban areas are increased. Bus services will be provided in line with four service categories:

- **UrbanLink bus services** on strategic routes, many using busways or road corridors with bus priority
- **local bus services** as the fine fabric of public transport
- **peak-only services** on major commuter corridors to boost capacity
- **inter-regional links** providing long distance bus services where rail services are not available.

2031 UrbanLink bus network

The 2031 UrbanLink bus network is a connected network of high-frequency bus routes that include quality passenger facilities and vehicles.

The UrbanLink bus network combines services operating on busways, dedicated green links or green bridges, on-road bus priority and arterial roads.

The UrbanLink bus network will include more cross-town routes as centres across SEQ develop.

The early planning of the UrbanLink bus network will inform land use decisions, giving direction on locations where a high standard of public transport can support an increase in residential and employment density. The public transport hubs and priority transit corridors identified through *Connecting SEQ 2031* will provide the basis for this integrated transport and land use planning.

UrbanLink bus services on priority transit corridors will be given priority for roll out to support opportunities to increase residential and employment densities.

Concentrating passenger demands will support high-frequency operations and investment in bus priority/HOV facilities.

Map 5.2 illustrates the 2031 strategic high-frequency bus network for SEQ.

Part D provides more detail on corridors where bus and HOV priority measures could be delivered for each of the urban local governments in the region.

The UrbanLink bus network identified in the draft *Connecting SEQ 2031* will be subject to further evaluation through TransLink Transit Authority network planning to determine priority and timing.

Local bus services

While there is a long-term emphasis on creating a strategic high-frequency public transport network, local bus services will continue to provide the fine fabric of the public transport network.

TransLink will determine service standards based on local demands.

Supporting the transformation of the bus network

Providing priority for buses through congested parts of the road network makes journeys faster and travel times more reliable. As well as the obvious benefits to customers of more reliable services, productivity of bus and labour resources is improved, which reduces the number of additional buses needed to cater for passenger growth.

Brisbane busways and on-road bus priority

The 1997 Integrated Regional Transport Plan[27] identified the development of the busway network to serve major movement corridors in Brisbane.

Significant sections of the busway network are now in place and busways have proven highly successful, supporting large increases in bus passengers since the opening of the South East Busway in 2001. The extension of the Northern Busway from Herston to Kedron and the Eastern Busway from Buranda to Coorparoo are underway.

Connecting SEQ 2031 supports the continued transformation of bus travel through extending existing busways to provide high quality bus corridors to Brisbane's north, east and west. Planning is under way to extend the Northern Busway from Kedron to Bracken Ridge and the Eastern Busway from Coorparoo to Capalaba.

The staged Western Bus Corridor will be an on-road bus priority route linking Kenmore, Mt Ommaney and the outer western suburbs directly to the Inner Northern Busway and through to the central business district.

The CoastConnect project proposes on-road bus priority from Caloundra to Maroochydore. This would improve bus travel time and reliability between Caloundra and Maroochydore. It will deliver on road bus priority solutions such as bus/transit and cycle lanes, upgrading bus stations and stops and giving buses priority at congested intersections.

Linking on road bus priority to UrbanLink bus routes

The *SEQ High Occupancy Vehicle (HOV) Network Plan* will establish a network of strategic on road bus priority corridors and bus routes through precincts to help target investment in bus priority facilities. These initiatives will focus on providing priority for buses to support UrbanLink bus routes (see map 5.8 for details).

On major arterial roads *Connecting SEQ 2031* suggests there should be a general preference for providing additional capacity for buses and other high occupancy vehicles, as opposed to taking away lanes previously used for general motor traffic capacity. Where traffic capacity is removed this can sometimes result in merging conflicts which in turn trap buses and high value commercial vehicles in congestion further up in the traffic stream.

However, in some cases, for example where a major new road is added as an alternative route, or where a community boulevard is created, bus or HOV priority may be preferred over general motor traffic lanes.

An important feature of a successful on-road bus priority project is also to have an UrbanLink bus service, as well as other local bus services using the facility. This will assist in the bus priority investment providing a realistic alternative to driving a private car, and improve the response of the community to bus priority investment.

27 Queensland Government (Queensland Transport) 1997 *South East Queensland Integrated Regional Transport Plan*

Map 5.2 – 2031 UrbanLink bus network

Transport and Main Roads, Connecting SEQ 2031 – An Integrated Regional Transport Plan for South East Queensland, 2010

Across the region there will also be a focus on 'green links' for buses and active transport. These could comprise:

- short sections of busway into a major town centre
- dedicated bridges for buses and active transport such as the Eleanor Schonell Bridge which links the University of Queensland to West End, the City and the Eastern Busway
- short cuts and bus gates such as the 200 metre green link from the Sunshine Coast University to Sippy Downs – which improved road safety and saved ten minutes on every bus trip.

Flexible public transport

The important role of taxis

Taxis play an important role in supporting the overall transport task in Brisbane, providing a flexible door-to-door service, as well as 24-hour operations.

Taxi public transport services are provided on a commercial basis, with taxi licences administered by Transport and Main Roads.

Offering new options for providing taxi services such as more flexible taxi arrangements such as multi-hire so the cost of the fare to an individual is reduced, can provide an important function in the overall transport network. More flexible arrangements can help fill the gap between private and public transport in low-density parts of SEQ and rural communities.

Catering for special needs and an ageing population

For some people, neither the private motor vehicle nor mainstream public transport services are suitable travel options. A taxi may be the only real alternative, though it is too expensive for most people to use for all trips.

Queensland's population is ageing even more rapidly than it is growing, with residents aged over 65 forecast to increase from 333 700 in 2006 to about 924 000 in 2031, an increase of 177%, compared to a general population increase of only 57%[28]. This will increase the proportion of the region's population over 65 from 12.5% to 22% in just 25 years.

The leading edge of the post-war baby boom will reach age 75 around 2020, meaning a large wave of people with high mobility expectations will reach a point where driving a car is increasingly less viable. This will exacerbate the already significant road safety challenges presented by aged drivers and increase demands for age friendly public transport.

A major emerging issue for public transport policy in Australia is catering for a large number of previously mobile, independent people as they move to dependent mobility triggered by the loss of their licence.

An important disincentive for frail aged drivers to voluntarily cease driving is the lack of any realistic alternative to private transport. Mainstream public transport is not always an appropriate option, even though the system is being made accessible to people with mobility difficulties.

With an ageing population and an increasing rural population, the region will need to develop other public transport models that cater for:

- low volumes of passengers
- multiple trip purposes to access centres for the daily business of shopping, appointments and social activities
- a wide range of target groups, if not the community at large.

Increasingly, there will be a need to ensure the ready availability of a discrete range of services with:

- highly accessible vehicles
- door-to-door services
- higher levels of driver support/assistance
- a more flexible attitude to timetable design/adherence.

Council Cab services are being rolled out by many local governments in the region, though eligibility to use these services is usually somewhat restricted.

Transport and Main Roads will work with TransLink, local governments and other service providers to address low volume needs on a local basis, consistent with an overall framework. Steps to support this will include:

- ensuring self-help tools are available for local groups (for example, the *Community-based Transport Queensland Toolbox and Guidelines*)[29]
- ensuring an enabling regulatory framework
- developing a transport policy framework including guidelines and standards.

A policy framework for developing low volume public transport should ensure services:

- are unrestricted in terms of who can use them and able to service multiple travel needs
- make use of the latest technology to match passengers with rides to ensure vehicles are utilised efficiently
- leverage off existing transport services, assets and infrastructure (for example by utilising spare capacity on existing services and/or idle vehicles)
- are supported by recurrent funding and promote cross program, cross government collaboration and partnerships
- are provided by professional transport operators (whether commercial or not-for-profit).

28 Queensland Government (Department of Local Government and Planning) 2006 *Queensland Population Projections*
29 Queensland Government (Queensland Transport) and Local Government Association of Queensland 2006 *Community-based Transport Queensland Guidelines*

6. Strategic road network

Signature projects – Road

SP10 **Deliver Connected and Managed Motorways**
A series of projects to complete the motorway network. Use technology to optimise performance and maximise capacity of the motorway network, and provide real time information on travel times.

Road transport is the dominant means by which people and goods are moved around SEQ. Roads are versatile facilities and can carry not only private vehicles but large and small commercial freight vehicles, buses, taxis, cyclists and pedestrians. Hence 'road' is not a mode of transport, but a network of facilities able to be used by multiple modes of transport.

Roads will remain the most extensive part of the transport network connecting communities to each other and allowing:

- supplies to get to industry
- goods to get to markets
- people to get to work, education and recreation.

As regions grow, urban space becomes more constrained and valuable. Roads take up very large amounts of urban space, and inevitably the region must choose between providing more road space or using existing road space more efficiently. Heavy road traffic also reduces the appeal of communities and emit large volumes of pollution. The need to maintain liveability and protect the environment is also a vital consideration in road planning.

These imperatives mean efficient and essential means of transport like buses and commercial freight vehicles need priority on parts of the road network that are in high demand.

The draft *Connecting SEQ 2031* recognises the fundamental value of roads in the transport system of a rapidly growing region. It seeks to manage and expand the network in a way that meets the needs of all users, while supporting a major shift to sustainable transport.

Existing strategic road projects

Motorways

- Ipswich Motorway upgrade
- Cunningham Highway upgrade Ripley Road to Ebenezer
- Gateway Motorway upgrade Capalaba Road to Nudgee
- Airport Link
- East-West Arterial Road upgrade: Airport Link to Gateway Motorway
- Bruce Highway M1: additional lanes from Boundary Road to Caboolture
- Pacific Motorway M1: additional lanes and interchange upgrades: Nerang to Smith Street
- Pacific Motorway M1: Coomera Interchange.

Multi-modal arterial roads

- Mt Lindesay Highway upgrade: Green Road to Jimboomba
- Gold Coast Highway: additional lanes Government Road to Stevens Street
- Hope Island Road: additional lanes from Pacific Motorway to Columbus Drive
- Nerang–Broadbeach Road upgrades: bus lanes and intersection upgrades
- Maroochydore Road: additional lanes Bruce Highway to Martins Creek.

Overarching principles for developing the road network

R 1 **Plan and manage strategic roads as one network** irrespective of jurisdiction

R 2 **Design and manage roads for all users**, including active transport

R 1 Plan and manage strategic roads as one network

While an individual road may be the primary responsibility of state or local government, planning and managing the strategic road network as one network will maximise the efficiency and performance of the region's roads.

Transport and Main Roads has created a 'Roads Alliance' to ensure coordinated road management with local governments in Queensland. In SEQ this alliance is being used to ensure the movement of traffic and the assignment of priority to certain users is planned and managed in a coordinated framework.

A particular need is to ensure new growth areas are provided with local urban arterial roads within communities, so they do not rely on a connection to the nearest motorway or highway for local road transport needs.

R 2 Design and manage roads for all users

Recognising that roads need to cater for a broad range of users is central to the approach taken to develop the 2031 strategic road network in the draft *Connecting SEQ 2031*. This can be achieved by planning and managing the strategic road network as multi-modal corridors, with priority given to how the road system will support delivery of the key transport policy goals established in Chapter 3.

Managing congestion, primarily caused by private motor traffic, is an important goal. However, protecting amenity and liveability, improving environmental performance and supporting economic prosperity are equally important. Congestion management needs to be supported by policies which reduce the need to travel and provide quality alternatives to car travel, as well as supporting strategic road capacity improvements.

Managing the arterial road network in the region will consider the following:

- urban arterial roads are multi-modal corridors, with a high priority given to the needs of buses, cyclists and pedestrians
- ring roads and bypasses will be used to move local traffic around town centres, so that centres become walkable and attractive
- arterial road improvements will generally include cycling facilities (either on-road or off-road)
- priority will be provided for freight traffic where needed (for example freight lanes and priority ramp signalling access at interchanges with the motorway network where there are high volumes of heavy vehicles).

Supporting principles for developing the road network

R 3 Provide a clear **strategic road hierarchy** based on the function of the road

R 4 Develop a **completed, resilient network of strategic roads**

R 5 Protect **urban appeal** and quality of life when designing roads

R 3 Strategic road hierarchy

Planning and managing roads in line with a functional road hierarchy allows the right type of traffic to be assigned to the right road. This ensures efficient movement of traffic and protects amenity in urban communities. The draft *Connecting SEQ 2031* adopts a functional hierarchy of strategic roads which includes:

- high-capacity, high-speed **motorways and highways** to move large volumes of traffic over longer distances
- **multi-modal arterial roads** to provide connections within communities and cater for a range of road users including pedestrians, cyclists, public transport, private vehicles, as well as commercial delivery vehicles
- **bypass roads** to remove traffic from urban centres
- **community boulevards** to provide amenity through activity and town centres, designed to cater for low volumes of traffic, with priority given to pedestrians, cyclists and public transport.

It is also vital to match the engineering design and physical access arrangements to the desired function of the road. The draft *Connecting SEQ 2031* establishes the following guidelines to guide planning and management of the functional road hierarchy.

Motorways and highways

Motorways and highways are the highest standard of roads, intended for major freight movements, interstate traffic and movement of regional traffic between major cities. They may be four to eight lanes wide and the posted speed is usually 100km/h or 110km/h with access limited to ramps about two kilometres apart.

The speed and design of motorways and highways means they are not safe environments for pedestrians or cyclists and are generally unsuitable for public transport except for long distance, express services.

Motorway and highway standard design should be used where the road needs to carry high volumes of traffic over longer distances.

The higher speed motorway design will naturally attract high traffic volumes. If built in the inappropriate locations, where a lesser standard of road is required, motorway standard facilities can encourage increased levels of local car traffic and work against the achievement of higher levels of public transport and cycling.

Planning for roads within new communities should generally avoid the creation of high standard motorway facilities within the urban fabric.

In some cases, motorway development may need to be undertaken through suburban areas, when part of an orbital motorway network or bypass of an urban centre, with appropriate features to minimise visual and noise impacts.

The person-carrying capacity of motorways can potentially be increased through the provision of HOV and bus priority measures on ramps. However, motorway transit lane facilities can reduce overall capacity due to extra merging and weaving requirements.

In general, measures introduced on motorways to improve person carrying capacity will focus on better management of all vehicle flows through improved incident detection and clearance, variable speed limits and ramp metering.

Multi-modal arterial roads

Where an arterial road through a community is primarily required to carry local traffic, public transport and freight deliveries for local business it should be developed as a multi-modal arterial road. Most new arterial roads in the region will fall into this category.

Multi-modal arterial roads provide for higher volumes of local traffic within cities. They are generally four lanes though may be planned or developed to six lanes in major growth areas, which may include transit or bus lanes where volumes of buses are high.

Posted speed will be 60 to 80km/h and vehicle access is limited to well-spaced intersections, generally at-grade. They will have a median and turn protection and provision for public transport, walking and cycling, with dedicated lanes where needed.

Arterial road design must also recognise the existing and desired characteristics of the urban environment with emphasis given to landscaping, vistas and surrounding land uses.

Planning for new urban arterial roads will occur as part of local government town planning and structure planning process for new communities. This will ensure a well designed road hierarchy is incorporated into the development of new growth areas. The major new areas where new urban arterials need to be investigated are shown on the local government maps in Part D of *Connecting SEQ 2031*.

Bypass roads

Ring and bypass roads are used to move through traffic around activity centres, to enable centres to become walkable and attractive. Traffic inside the ring is given a low priority with walking, cycling and public transport emphasised. There may be special priority arrangements for delivery vehicles either through kerb space allocation and/or special-purpose lanes or streets within the centre.

Ring roads and by-passes are generally created by upgrading existing roads or streets and may be two or four lanes. Bus priority may be appropriate on some sections, though it is more likely a bus 'green link' would be provided direct to the heart of the centre. Car parking can be located adjacent to the ring road to reduce traffic entering the town centre.

Community Boulevards

Where an existing arterial road currently carries high volumes of traffic through a town centre or place of community significance, such as an entertainment precinct, restaurant 'eat street' or beachside suburb, it should be developed as a 'community boulevard'. Most traffic is diverted to a ring road or bypass road designed to cater for high traffic volumes.

Community boulevards are low speed multi-modal roads providing for buses, cyclists and pedestrians[30].

Cross movement for pedestrians between land uses on either side of the road is an important factor in the design of community boulevards.

Community boulevards are areas of higher emphasis on amenity, and with landscaping, built form, seating, and lighting. The design of the road creates legibility for users, a slower speed environment to support surroundings and ensure the safety of all modes. Where possible, car parking and lot access is predominantly at the rear of development fronting the boulevard to maximise the access for pedestrians, cyclists and bus passengers to the land uses.

Community boulevards will generally be developed along existing arterial or sub-arterial roads passing through activity centres, particularly at locations identified as hubs in the centres access hierarchy. They will support the creation of priority corridors.

Community boulevards may need to be supported by the development of parallel arterial roads or bypass roads around centres. Regional traffic and in particular, non essential heavy vehicle movements will be encouraged to use alternative routes, rather than community boulevards.

It is a priority of the draft *Connecting SEQ 2031* to develop a best practice guideline with design tools for land use planners and road designers to consider the road – land use interface in activity centres in an integrated manner.

Nundah Village – a bypass supporting urban renewal

Sandgate Road is an arterial road through Brisbane's inner north, with about 60 000 vehicles per day using the road.

Nundah Village is a shopping and community centre surrounded by a residential area characterised by restored colonial era homes and more modern medium density housing and schools. Over many years, its shopping centre declined due to traffic, parking, noise and an unfriendly pedestrian environment brought about by the high volumes of traffic using Sandgate Road.

A road tunnel was opened in 2002 and has taken the majority of the traffic out of Nundah village, providing a catalyst for urban renewal. New shops and restaurants have opened in the village and new apartments are being developed around the village to take advantage of its improved lifestyle and ready access to the centres of Brisbane.

The centres of Nundah and Toombul are the subject of ongoing considerable interest for transit-oriented urban renewal.

30 Westerman H 1998 *Cities for Tomorrow: Integrating transport, land use and the environment* Austroads: Sydney

R 4 Develop a completed resilient network of strategic roads

In some parts of the region the strategic network is incomplete and historical arterial roads are called upon to meet demands for long-distance freight and passenger travel.

This results in congestion, a poor mix of heavy long-distance vehicles and local car traffic and reduced amenity along the road corridor.

There is also an over-reliance on single sections of the motorway network, for example the Gateway Motorway north. When there is a major incident on this motorway, the metropolitan road network can be brought to a standstill.

Further improvements to the strategic road network in SEQ will be needed to provide a completed network that is resilient to:

- major incidents
- possible climate change impacts such as rising sea levels and extreme weather events
- possible long-term changes to settlement patterns and economic activity.

Connected and Managed Motorways

The Connected and Managed Motorways project will complete a high-speed, high-capacity network across the region that is suitable for 24-hour operation of heavy freight vehicles. It will also improve network resilience by ensuring an alternative high capacity route is available in the event of a major incident.

The components of the project are:

- a completed and connected network of motorways and highways across the entire region
- managed motorways will ensure traffic volumes entering and using motorways are matched to capacity, optimising motorway performance.

R 5 Consider urban surroundings in road design

Linking the functional road hierarchy to land use planning can ensure the right match between traffic volumes and quality of life along road corridors.

Shifting high-volume and heavy vehicle traffic to bypass motorways and major arterials allows urban areas to become places designed for people not vehicles.

Projects to complete the motorway network must be integrated with urban surroundings and safety projects on the historical arterial roads that no longer have to cater for high volumes of traffic.

The management of urban arterial roads must support sustained improvements as well as allow for infill and regeneration along corridors that provide trunk routes for public transport.

Managing road design and traffic capacity on radial arterial roads to support bus priority and urban renewal will provide support for urban infill and the compact urban form objectives of the *SEQ Regional Plan*.

Where an arterial road is identified as a high-frequency bus corridor, the Queensland Government and local governments will work together to develop land use plans for the corridor to facilitate mixed-use and higher density development.

In addition, some historical arterial roads can be converted to multi-modal arterials or community boulevards where all road users can mix safely.

At a more local scale, a bypass road for a congested town centre may be an appropriate solution to provide for through traffic and deliver benefits to support future development of the centre.

Initiatives to support strategic road network development

Servicing major new development areas

While investment priority will be given to efforts to support infill and redevelopment, there will be the need for new development areas to accommodate between 600 000 and 800 000 residents by 2031.

The *SEQ Regional Plan* identifies eight major residential and employment development areas, and three major employment development areas within the urban footprint[31].

The provision of roads and public transport to new development areas needs to be sequenced in line with the progress of development.

The state government will work with local governments and developers to coordinate transport investment with development timelines in these locations, so transport facilities are provided in the early stages of development.

This will mean that infrastructure agreements need to include significant funding of new road connections and public transport will need to be negotiated by local government and developers.

Since in some cases investment in rail may lag behind land use development, it will be important to ensure high-frequency bus services can operate efficiently on the road network in the early stages of development.

Multi-modal arterial roads in new communities

The road network in some developing parts of the region means communities are too reliant on motorways for local trips. Some urban areas have been developed and connected to a motorway as a virtual island with no arterial links to surrounding areas. A lack of urban arterial roads for local trips means the motorway is used for short trips, resulting in congestion for longer distance traffic and freight traffic which impacts on the region's economic vitality.

Motorways are the most expensive type of roads to build and the function of motorways to provide for longer distance travel needs to be protected. Urban arterial roads are more cost-effective for local trips and have the added benefit of being able to cater for the needs of all modes.

Transport plans should be developed for all major new communities to address how passengers and goods will be transported within and outside of that community. These plans must include new multi-modal urban arterial roads catering for local traffic and public and active transport which are funded and constructed as part of the development process.

Protection of priority freight corridors

The draft *Connecting SEQ 2031* establishes a strategic freight network. This will enable the optimum locations for new freight and industry enterprises to establish. Sites with ready access to the interchanges on the motorway network will provide reliable access to the port, inter-modal terminals and markets internal and external to the region. These sites should be identified and protected for freight-generating uses and buffered from sensitive uses and passenger network conflicts.

The draft *Connecting SEQ 2031* also identifies the transport network requirements for the *SEQ Regional Plan's* enterprise employment development areas to guide investment decisions and enable corridor protection.

Regional roads

The region's strategic road network includes roads outside the major urban areas to rural and semi-rural settlements. These roads are important because they provide the primary transport connection between these communities and larger urban settlements.

Ensuring rural connections are safe, have good flood immunity and sufficient capacity remains a major focus for road network planning in the region.

Catering for emerging technologies

New technology will continually evolve to assist in the management of the road network. The Connected and Managed Motorways Project is one example of how technology will be utilised in the future.

This project includes real time traffic incident and alternative route planning information on navigational systems and mobile phones.

Another emerging technology is cooperative transport technology. Vehicles communicate with each other and with kerbside infrastructure to improve detection of hazards and provide warnings of speed limit changes. These systems are being trialled around the world and may become 'mainstream' before 2031.

Preserving existing corridors

Several major corridors, and a number of smaller parcels of land preserved in the past are not the subject of current *Connecting SEQ 2031* proposals. For many of these corridors, the state already owns a significant proportion of the affected property.

These corridors will be preserved for future transportation purposes that may emerge as the region continues to develop. They could serve motorised transportation needs that emerge beyond 2031, or be utilised for purposes such as green links and active transport corridors. They will not be sold off or relinquished for non-transport purposes. Corridors to be preserved include:

- the Moggill Pocket Arterial Road/ Moggill – Warrego highway Connection
- the Samford Valley sub-arterial.

31 Queensland Government (Department of Infrastructure and Planning) 2009 *South East Queensland Regional Plan* p107

2031 strategic motorway network

Connected and managed motorways

Completing the motorway network

Projects to complete the motorway network include:

- completing an orbital motorway network for metropolitan Brisbane including development of the north-south motorway from Toowong to Everton Park (as outlined in the *Western Brisbane Transport Network Strategy*) with a connection to the Bruce Highway (M5)
- Centenary Highway upgrade Toowong to Ipswich Motorway (M5)
- Centenary Highway upgrade Logan Motorway to Springfield (M5)
- Gateway Motorway upgrade to six lanes north of Nudgee Road to Bruce Highway (M1)
- Port of Brisbane Motorway upgrade
- Bruce Highway (M1) upgrade (Caloundra Road to Curra)
- Pacific Motorway (M1) upgrade (Nerang to Tugun)
- Northern Link (M5).

Longer-term projects include:

- Warrego Highway upgrades (M2)
- Toowoomba bypass second range crossing
- Gateway Motorway (M1) southern extension to Jimboomba
- Southern Infrastructure Corridor
- Mount Lindesay Highway deviation west of Beaudesert to Bromelton
- Western Ipswich Bypass.

The 2031 strategic motorway network is illustrated in map 6.1.

Managing the motorway network

Technology will play a major role in managing traffic to optimise performance and maximise capacity. In peak periods demand regularly exceeds capacity resulting in significant congestion. It can take a number of hours before the capacity of the motorway is again at the maximum level.

Use of technology can help provide a more reliable service, even with high traffic volumes. This is done through controlling the volume of vehicles onto motorways and smoothing the merge conditions.

Techniques for managing motorways include:

- ramp signalling – to control the number and type of vehicles entering the motorway at interchange ramps. Ramps need adequate length for vehicles waiting to join the traffic stream. Ramps can give priority for freight, public transport or high occupancy vehicles as required
- lane use management – varying the purpose of the lane in real time, to allow breakdown clearances and better use of special purpose lanes to clear incidents
- varying speed limits – to ensure that traffic moves at the highest possible safe speed to arrive at a potential congestion point more evenly and avoid flow breakdown
- incident management – detecting and clearing incidents before they cause major impacts on traffic flow
- traveller information – to advise motorists of conditions and assist in safely negotiating incidents and changing lanes earlier to reduce merging delays
- speed detection and special-purpose lane enforcement.

Multi-modal arterial roads

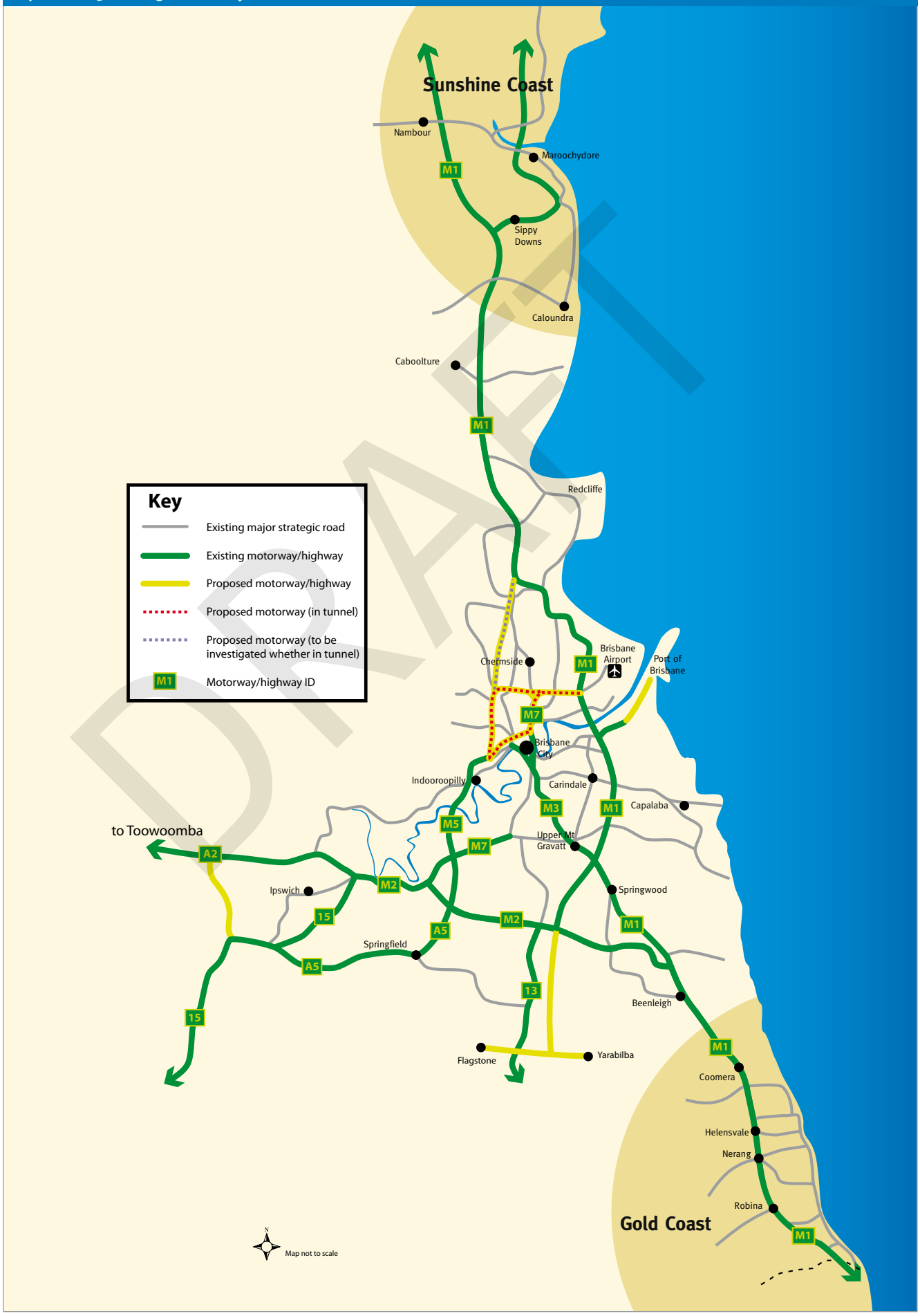
Developing multi-modal urban arterial roads

The concept of multi-modal urban arterial roads includes integration of walking, cycling and public transport into the design and management of the road, so it provides competitive options to using a car.

The draft *Connecting SEQ 2031* includes a strong focus on the developing of multi-modal urban arterial roads with the following characteristics:

- generally four lanes with a median and turn protection
- a corridor protected for six lanes in high-growth or strategic public transport corridors
- vehicle access restricted to well-spaced intersections (at grade)
- recognition of the existing and desired urban environment with emphasis given to landscaping and vistas where appropriate
- provision for public transport, walking and cycling with on-road bus priority and cycle facilities where needed
- regular opportunities for pedestrians to cross
- posted speed to be appropriate to a multi-modal user environment, generally a maximum of 80km/h
- kerbside parking generally not permitted with parking at the rear of properties, accessible from side streets through planned intersections
- building development may face the road but there is no direct driveway access.

Map 6.1 – 2031 strategic motorway network



7. Active transport network

Signature projects – active transport

SP11 **Develop a network of separated bikeways**
Continue to develop bikeways that are separated from general traffic, including the ongoing implementation of the *SEQ Principal Cycle Network Plan*.

SP12 **Complete 5**
Prioritise completion of the principal cycle network within five kilometre catchment of activity centres.

SP13 **Connect 2**
Provide safe and convenient pedestrian and cycling access to public transport stops and stations.

SP14 **Educated Ways**
Improve walking and cycling routes to schools and universities supported by school travel plans and so on.

Walking and cycling are efficient and sustainable modes of travel that are readily accessible to a large proportion of the population.

Because they involve the use of direct human power these active transport modes also support physical activity and deliver a community health benefit.

They are low cost and environmentally friendly, emitting no air or noise pollution and consuming no fossil fuels.

Despite the numerous benefits of walking and cycling for the individual and for the community, only about 10% of all trips taken each day in the region are currently by active transport.

Although bicycle sales are increasing, walking and cycling trends have been static over the past few decades due to urban sprawl and the increase of car-dependent suburbs, which make it more difficult to walk and cycle.

With the support of a long-term move to more compact communities, there is potential to increase the proportion of trips by walking and cycling and create greener, more liveable urban spaces.

Currently, walking accounts for about 9% of all trips and is also often a component of public transport trips.

Cycling accounts for only 1.2% of all trips in the region, yet nearly half of all residents have access to a bicycle.

Connecting SEQ 2031 sets the ambitious target of increasing cycling mode share to 9% of all trips and a modest increase in walking to 11%.

The total target of shifting the combined active transport mode share from 10% to 20% of all trips in SEQ can be achieved if every resident in the region shifted just two out of their 25 trips each week to walking or cycling.

The focus for encouraging the eightfold increase in cycling will be to shift some of the trips taken by car that are less than five kilometres.

Currently almost 50% of car trips fall into this category.

The Queensland Government will work with local governments across Queensland to prepare a comprehensive *Queensland Cycle Strategy* to guide policy and investments as this important goal is pursued.

- In Brisbane between 2005 and 2008, there has been a 50% increase in cyclists on key cycle routes
- In the 20 years between 1986 and 2006, the percentage of cycle trips to work in Brisbane has risen from 0.5% to 3%
- Between 2001 and 2008, there was a 42% increase in the number of people participating in regular recreational cycling in Queensland
- Between 2001 and 2006, there has been a 17% increase in the number of people choosing to ride to work in Brisbane
- About 10 000 participants took part in the 100km Wilson HTM Brisbane to Gold Coast Cycle Challenge in October 2009 compared to 5400 in 2007.

Existing active transport projects

The Queensland Government has committed to supporting more walking and cycling for transport in SEQ. Some initiatives to be delivered in partnership with local governments are:

- Brisbane City Council plans to complete stage 2 and stage 3 of the Bicentennial Bikeway upgrade and extend the Kedron Brook Bikeway to the west
- Redland City Council plans to complete missing links in the Moreton Bay Cycleway and roll out cycle facilities on the Moreton Bay Islands
- Sunshine Coast Regional Council plans to extend cycle facilities along David Low Way and to the west towards Bli Bli
- Ipswich City Council plans to complete the Goodna Creek Bikeway extending from Redbank Plains to Redbank Rail Station, cycle facilities linking Ipswich CBD to the Amberley Air Force Base and extending Brassall Bikeway to Wulkuraka
- Gold Coast City Council plans to construct bikeways in Varsity Lakes and construct a green bridge at Burleigh Waters to improve access between canal estates
- extensions to the V1 bikeway linking Brisbane CBD to the Gold Coast.

Overarching principles for developing the active transport network

A 1 Develop a **connected network of safe active transport routes** comprising major spines linking local walking and cycling networks for travel around the region's cities and towns

A 2 **Integrate walking and cycling with public transport** to extend its reach

A 3 **Create a community culture** that embraces walking and cycling

A 1 Connected network of safe active transport routes

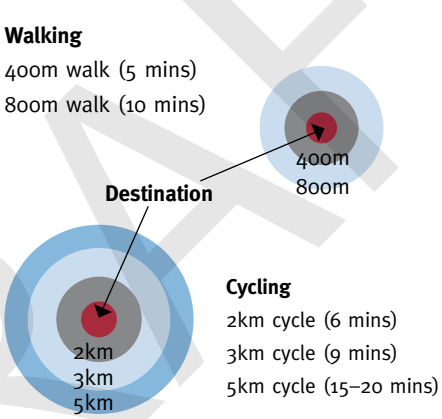
People consistently tell transport planners they would walk and cycle more if there were safer facilities. A critical part of supporting individuals to make the choice to shift to walking and cycling is providing a connected network of safe active transport routes, so these vulnerable road users do not have to mix with heavy vehicle traffic.

An active transport network covering 3000 km has been identified as part of the *SEQ Principal Cycle Network Plan*. The extent of completion of the principal cycle network varies across the region, but it is estimated about 23% of the overall principal network is complete (based on current information provided by SEQ local governments).

Several high-capacity cycling corridors have been identified in the *SEQ Principal Cycle Network Plan*. These corridors will be off-road or on-road protected cycle facilities with physical separation from general traffic. Some key active transport projects planned for delivery include:

- northern bikeway section 1 (Kedron to CBD)
- northern bikeway section 2 (Kedron to Aspley)
- delivery of a cycle corridor as part of the Port of Brisbane Motorway upgrade
- Go Between Bridge from South Brisbane to Milton (Brisbane City Council project).

Figure 7.1 – active transport catchments



A 2 Integrate walking and cycling with public transport

Most people walk to public transport, though there is an increasing trend to park 'n' ride. Cycling to public transport is currently restricted by a general lack of secure bicycle storage and the restrictions on carrying bikes on public transport vehicles.

Connect 2

Connect 2 will focus on developing and upgrading walking and cycling routes that connect to major public transport stations and stops. Providing safe and convenient pedestrian and cycling access to stations and stops increases the attractiveness of public transport and extends its reach deeper into residential communities.

Increased integration with public transport will also be supported through door to door journey planning. In the future, information for public transport passengers will incorporate walking and cycling routes and estimated travel times to allow users to select routes based on level of skill, confidence and ability. Local governments across SEQ will be important partners in delivering good design outcomes for walking and cycling access to public transport stations.

A 3 Create a community culture

To encourage people to walk and cycle more, there is a need to break away from a car culture and develop a sustainable, active culture in the urbanised parts of the region. An active culture is built on people having the confidence, incentive and facilities to walk or cycle whenever it suits them out of convenience as much as need. Encouraging a supportive culture for active transport in the region will also mean motorists are much more aware and supportive of active transport users on the road system.

Education, training and publicity will be used to promote the benefits of walking and cycling to individuals and the community. This must include programs that convey the clear message that the pedestrians and cyclists are legitimate road users. Promoting an active transport users code of conduct will also improve the respect shown by motorists to other road users.

Personalised programs such as TravelSmart already include messages about the benefits of travel behaviour change. This includes workplace and locality based travel plans and can potentially link to other state and national initiatives such as 'find your 30' (minutes of activity per day), ride to work, walk to work and walk to school days.

An applied research project is under way to quantify the cost and health benefits of active transport. A joint partnership with Queensland Health, the project will be based around specific infrastructure in four geographic areas and involve up to 20 Queensland schools. Tools for measuring the cost-benefit and health benefits of active transport strategies and infrastructure will be developed. This will allow governments to evaluate the health and economic benefits of promoting walking and cycling as legitimate transport modes.

Supporting principles for developing the active transport network

A 4 Complete the **SEQ Principal Cycle Network**, within five kilometres catchments of activity centres

A 5 Improve active transport routes to **activity centres, tertiary education institutions and schools**

A 6 Ensure **new communities** include components of the major cycle spines and local walking and cycling networks

A 7 Ensure new building developments include **end-of-trip walking and cycling facilities** such as showers and bicycle storage

A 4 SEQ principal cycle network

While SEQ has benefited from increased investment in active transport facilities over the past two decades, there are still many areas without a connected network.

The *SEQ Princpal Cycle Network Plan* was released in 2007 and provides a master plan for the region's principal cycling routes (spines) that support local cycle networks. These spines provide connections between areas of high population, major activity centres, public transport stations and other facilities like universities, school precincts and recreational precincts. Some cycle spines also support walking and wheelchair access when provided as off-road paths.

SEQIPP includes a $600 million allocation to deliver cycling infrastructure identified as part of the SEQ principal cycle network.

Some high level strategic active transport corridors are shown on the maps in Part D, 'What it means for your community'. These represent priorities for investment established through the *Connecting SEQ 2031* process. However the *SEQ Principal Cyle Network Plan* remains the main source document for establishing and delivering the region's active transport spines.

A 5 Activity centres, tertiary education institutions and schools

As well as improving the strategic cycle spines as proposed in the *SEQ Principal Cycle Network Plan*, there is a need to improve active transport access and safety from residential communities to their local attractions and centres. This can be addressed through the *Connect 2* project for public transport stations and stops (see previous page) as well as *Complete 5* and *Educated Ways* projects.

Complete 5

Trip distance and journey catchments are critical considerations in determining the attractiveness of active transport as a means of accessing centres. The five-kilometre catchment around the region's activity centres offers high potential to achieve a shift to active transport given that:

- around 85% of all cycle trips and almost all walking trips are less than five kilometres
- almost 50% of all car trips in SEQ are less than five kilometres
- around 85% of the region's population live within five kilometres of a *SEQ Regional Plan* activity centre
- 65% of the principal cycle network is within five kilometres of these activity centres.

Complete 5 will focus on completing the active transport network within five kilometre catchments of activity centres identified as potential major generators for active transport trips due to a concentration of employment, residential and/or retail activity.

Educated Ways

The modern trend is for families to travel longer distances to a school of their preference. Safety and security concerns have grown with increasing traffic. Currently 74% of primary school trips and 44% of secondary school trips are by car, which results in about a 20% increase in traffic in the morning peak. With the right mix of investment and policies, there is significant potential to shift more trips to active transport.

Educated Ways will focus on five-kilometre catchments around schools and universities located within five kilometres of centres. These improvements to active transport will be supported by initiatives to encourage more cycling and walking such as school travel plans, 'walking school bus' programs and ride to school days.

A 6 New communities

As discussed in chapter 8, ensuring arterial roads cater for all road users including pedestrians and cyclists will be an important part of ensuring walking and cycling are viable travel choices for a broader cross section of the community.

Almost 50% of new residential development will be in new communities. Incorporating appropriate facilities for active transport from the outset will be an integral part of the community design and approval process. This will include providing multi-modal arterial roads that cater for pedestrians and cyclists, as well ensuring that street layouts provide optimal connectivity for walking and cycling trips.

A 7 End-of-trip facilities

Providing end-of-trip facilities at public transport stations, workplaces and activity centres can encourage more people to walk and cycle. Policies and town plans will ensure end-of-trip facilities including bicycle storage, lockers and showers are included in major new building developments. These policies will provide guidance to public and private sector developers and include a minimum standard of end-of-trip facilities to be provided in new building developments.

The Queensland Government will also roll out a trial of Green Pods at selected rail stations. The Green Pod is a high quality end-of-trip facility for up to 28 cyclists in a space the size of a single car space. Green Pods will provide secure bike storage, lockers, showers at train stations.

2031 active transport networks

Although much of the infrastructure to provide for increased walking and cycling will be delivered at a local scale, *Connecting SEQ 2031* has identified the strategic active transport corridors where more substantial infrastructure will be needed to carry higher volumes of pedestrians and cyclists.

Map 7.1 shows strategic transport corridors and centres where active transport infrastructure should be prioritised. More projects are included on the local government maps in Part D of *Connecting SEQ 2031*.

Map 7.2 - 2031 strategic regional bikeway network

8. Freight network

Signature projects – freight

SP15 **Freight Terminal Strategy**
Upgrade existing freight terminals for enhanced access and increased capacity, and implement new freight terminals at strategic locations including Bromelton.

SP16 **Freight rail line upgrade Bromelton to Port of Brisbane**
Provide a narrow-gauge third rail from Bromelton to Acacia Ridge with loops for 1500-metre trains. Upgrade the interstate rail to enable movement of double stack containers to Acacia Ridge. In conjunction with the proposed Cross River Rail, provide a dedicated dual gauge freight line from Acacia Ridge to the Port of Brisbane.

Connecting SEQ 2031 has undertaken a major review of freight planning in the region. Significant economic growth, increasing household consumption levels and urban growth in SEQ are forecast to lead to a 130% increase in the total tonnage of freight movement between 2001 and 2031. This compares to a population growth of 86% in the same period.

Freight movement requires transport investment and sound policy management to ensure increased freight activities support economic vitality, and do not impact on road safety, local amenity and the environment. Government needs to play a central role in creating a safe, sustainable and productive freight network.

The *SEQ Regional Plan* establishes a principle of providing an efficient freight network to enhance the region's position as a major national and international freight and logistics centre servicing the Australian east coast[32].

The draft *Connecting SEQ 2031* gives a high priority to the development of a strategic network of priority freight routes of rail, roads and inter-modal terminals that allow for 24-hour freight operations and uncongested access to ensure:

- access for local businesses to inputs, supplies and markets (locally and offshore)
- competitive advantage and improve efficiencies for businesses
- attraction and retention of investment to expand the economy and create jobs
- social and environmental impacts of freight operations are minimised.

Existing strategic freight projects

Planning and investment to create a strategic network of priority freight routes of rail, roads and inter-modal terminals is well under way through network studies and planning for new road and rail freight facilities.

Freight network investigations

- Mt Lindesay–Beaudesert strategic transport network investigation
- Gateway Motorway (extension south of Logan Motorway) investigation and preservation
- proposed inland rail between Melbourne and Brisbane
- southern freight rail corridor from Rosewood to Kagaru.

Motorways

- Gateway Motorway upgrade from Capalaba to Nudgee
- Ipswich Motorway upgrade
- Cunningham Highway upgrade (Ripley Road to Ebenezer)
- Airport Link (M7)
- East-West Arterial road upgrade (Airport Link to Gateway Motorway) (M1)
- Pacific Motorway (M1) additional lanes and interchange upgrades (Nerang to Smith Street).

Rail freight

- dual gauging of existing track for freight from Acacia Ridge to Bromelton
- 4th track Corinda to Darra and resignalling Corinda Junction
- new crossing loop at Murarrie
- upgrade Yeerongpilly to Dutton Park rail line
- grade separation Beaudesert Road and passenger dual gauge rail line.

The growing freight task

It is estimated that businesses in the region produced 45 million tonnes of freight in 2004[33]. About 55% of this freight stayed within the region, used as inputs to local production activities or for household consumption. The remaining 45% left the region for consumption/production activities overseas or in other states. There are also large bulk freight flows, primarily coal and grain, travelling through the region to access the Port of Brisbane. Bulk crude oil and petroleum products also enter the region through the Port for refining and distribution.

Freight traffic is growing more rapidly than population and employment, and the total freight stream is expected to grow by nearly 130% to 169 million tonnes per annum (mta) between 2001 and 2031. Just over half of this will be produced by businesses in the region.

Table 8.1 provides an overview of regional freight movements based on 2001 levels and 2031 forecasts. All intra-regional freight is currently moved by road.

Rail has some penetration in longer distance movements as shown in Figure 8.1.

Table 8.1 – SEQ regional freight movements in 2001

Freight stream	2001 freight levels (tonnes)	2031 freight levels (tonnes)
Intra-SEQ freight	25	53
Inter-regional freight	43	101
Transit freight	6	16
Total freight	**74**	**170**

Source: Sd+D Input-Output Model, [figures from 2026 have been extrapolated to 2031]

32 Queensland Government (Department of Infrastructure and Planning) 2009 *South East Queensland Regional Plan* p 148
33 Strategic design and development (for Queensland Transport) 2004 *Study into input and output freight generation within SEQ*

Household consumption

SEQ households are forecast to consume a total 46 million tonnes of freight per year by 2031 – nearly three times 2001 consumption levels[34]. Consumption will increase faster than local manufacturing production, with an increasing proportion of goods being sourced from outside the region. Increased reliance on imported goods has implications for maintaining and upgrading international and interstate transport gateways.

Building and construction

Between 2009 and 2031, an estimated $123 billion in new infrastructure is needed for SEQ[35]. This infrastructure will provide long term benefits for industry, but will also generate substantial freight movements during development. For example, about 25 000 tonnes of crushed rock is needed to construct just one kilometre of a two-lane highway. This equates to about 700 round trip truck movements.

Building work around the region will also drive substantial growth in freight demands to produce over 690 000 new residences and workplaces for an additional 900 000 workers by 2031.

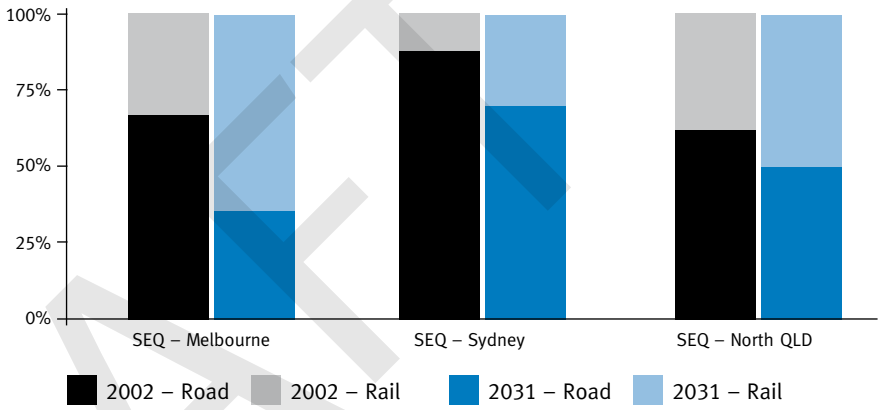
Regional freight gateways

The regional gateways are the Port of Brisbane, Brisbane Airport and three inter-modal road/rail freight terminals.

Brisbane Airport

The Brisbane Airport plays a supporting freight role in the Australia TradeCoast with both domestic and international air freight being less than 2% of the total tonnage of output through the Port of Brisbane. In 2006–07, the airport handled approximately 149 200 tonnes of domestic and international air cargo[36].

Figure 8.1 – mode share on key inter-regional routes



Source: Department of Transport and Main Roads 2008. SEQ Inter-modal Freight Strategy Terminal Study

However, the weight constraints on air freight mean that this small percentage is often high-value, light-weight cargo requiring urgent delivery such as parcel post and fresh seafood for export.

By 2026, air freight is expected to triple[37]. In addition, development of airport land is expected to increase generation of freight for on-site activities. All freight to and from the airport is moved by road. Since air freight is usually time critical, maintaining reliable roads to the airport is vital to supporting growth in air freight.

Port of Brisbane

The Port of Brisbane is integral to freight movements in SEQ with bulk commodities such as coal and grain passing through the region primarily by rail to access the port for export. The port is also the entry point to SEQ for containerised freight, bulk crude oil and petroleum products.

The Port of Brisbane is Australia's largest multi-user general cargo and commodity port and third largest container port. It is also the fastest growing port in Australia and overall freight volumes through the Port are expected to increase substantially in coming years, having undergone 14 years of consecutive record growth[38].

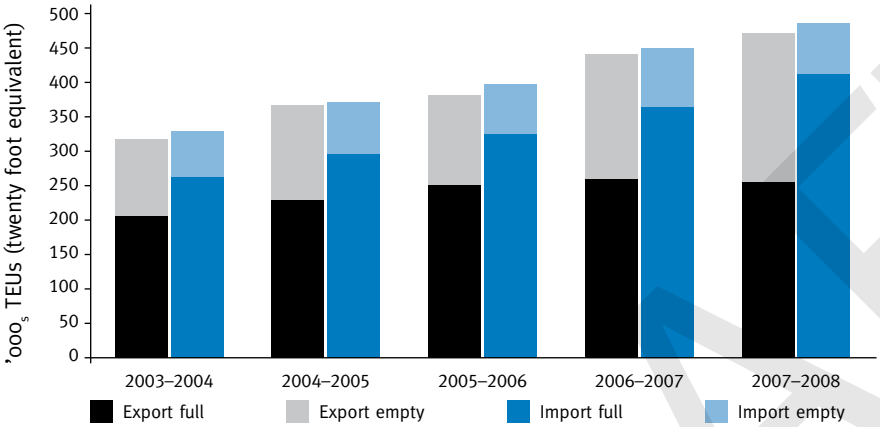
Approximately 95% of Queensland's container trade moves through the port. The volume of containerised trade is expected to triple in the next 20 years. To support these volumes, the trend forecasts suggest the number of heavy vehicle movements through the port will increase from current levels of about 5000 vehicle movements per day to 15 000 by 2031[39].

Rail accounts for 50% of export movements through the Port of Brisbane, predominantly related to the movement of coal, but accounts for just 2.6% of imports. Rail currently caters for 12.8% of container movements through the port and this has been steadily declining over the past five years[40].

The draft *Connecting SEQ 2031* recommends investment in rail facilities to accommodate short haul rail shuttles to terminals outside of the port precinct in order to address the decline in rail freight.

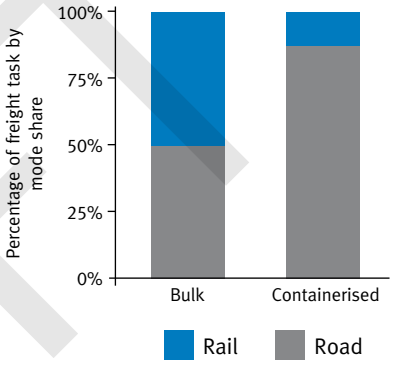
34 Strategic design + Development (for Queensland Transport) 2004 *Study into input and output freight generation within SEQ.*
35 Queensland Government (Department of Infrastructure and Planning) 2009 *SEQ Infrastructure Plan and Program (SEQIPP) 2009–2026*
36 *Brisbane Airport 2009 Preliminary Draft Masterplan*
37 PSA Consulting (for Australia TradeCoast Ltd) 2008 *Australia TradeCoast freight study* p 43
38 Queensland Government (Department of Transport and Main Roads) 2008 *Queensland ports trade statistics report for the five years ending 30 Jun 2008*
39 Queensland Government (Department of Transport and Main Roads) 2009 *draft Rail strategy for South East Queensland*
40 Portland Group and SAHA International 2008 *Four Key Supply Chains – Opportunities for Innovation*

Figure 8.2 – Port of Brisbane container throughput



Source: Department of Transport and Main Roads 2008 SEQ Inter-modal Freight Strategy Terminal Study

Figure 8.3 – rail/road mode shares for freight through the Port of Brisbane



Source: Queensland Department of Transport and Main Roads 2009 Rail Strategy for SEQ

Brisbane inter-modal terminal

The Brisbane inter-modal terminal, located on Fisherman Islands supports containerised freight movements from both road and rail through the Port of Brisbane. It also handles local container movements going from the Australia TradeCoast precinct to rail. The site has dual gauge rail facilities and has the capacity to handle long term growth forecasts in containerised trade through the Port. However, the very high levels of growth forecast for port movements will reduce its ability to handle the full range of future domestic inter-modal traffic generated within the surrounding Australia TradeCoast precinct.

Acacia Ridge freight terminal

The Acacia Ridge freight terminal is Queensland's primary road–rail inter-modal terminal and is used for both inter- and intra-state rail freight movements. The terminal is located 14 kilometres south of Brisbane, and has dual gauge rail lines servicing the corridor to Bromelton and the Port of Brisbane, as well as standard gauge connections to Sydney and narrow gauge connections to overland networks.

Interstate freight growth is likely to have the greatest impact on Acacia Ridge in the future. Table 8.2 shows forecast growth for interstate freight between 2004 and 2029. While there is uncertainty about how rail mode share may change, and what other infrastructure projects might support future growth of interstate freight, even modest growth within this market segment is likely to have a substantial impact on the capacity of the Acacia Ridge site. Investment in the establishment of new inter-modal terminals will be necessary to accommodate growth in containerised trade beyond 2015.

Moolabin freight terminal

There is a small road and narrow gauge rail inter-modal terminal at Moolabin which is privately owned and heavily constrained in respect of expansion potential. The eventual use for this terminal may be for rail management purposes with the terminal function being transferred to Acacia Ridge or a major new terminal to the south.

Table 8.2 – forecast growth for interstate freight

Market	2004 base year		2029 forecast		
	Total Mt pa	Rail share Mt pa	Total Mt pa	Rail share without inland rail Mt pa	Rail share with inland rail Mt pa
Sydney – Brisbane	7.0	0.8 (11%)	17 – 19	4 (~22%)	4 (A)
Melbourne – Brisbane	4.5	1.5 (30%)	10 – 13	7.4 (64%)	0.7 (B) 7.9 (C)

(A) – likely increase in market share due to available capacity not assessed
(B) – Remaining traffic on the existing route via Sydney
(C) – Traffic on new inland rail

Source: Department of Transport and Main Roads 2008. SEQ Inter-modal Freight Strategy Terminal Study

Overarching principles for developing a freight network

F1 Develop a **strategic network of freight routes** (rail, strategic roads, supporting roads) and **inter-modal terminals**

F2 **Manage the strategic freight network** and its environment to provide a good level of service for freight vehicles, 24 hours a day

F1 Strategic network of freight routes and inter-modal terminals

In the past, investment for freight was often seen as less important than high profile projects to eliminate commuter transport problems.

Investing in a strategic freight network has flow-on benefits in terms of economic development, improved safety and community appeal. Having a clearly identified strategic freight network also informs industry location choices so new businesses have guaranteed access to materials and markets.

Rail freight routes

All rail freight currently originates from outside the region, and rail freight continues to lose market share to road freight.

The right mix of policies and investments can support an increase in the share of freight on rail. This will reduce congestion and bottlenecks at the Port of Brisbane and move bulk and containerised goods at a lower cost and with less environmental and community impact than heavy road freight.

The draft *Connecting SEQ 2031* seeks initially to address the present decline of rail freight for containerised goods. In the longer term it seeks to achieve an increased market share in both bulk and containerised rail freight.

Road freight routes

The *SEQ Regional Plan* identifies a number of roads as priority freight routes. The road network will be planned and managed so that priority freight routes are developed to appropriate standards and operating environments, supported by regulation and technology.

Priority freight routes (regardless of ownership, management or jurisdiction) will need to ensure reliable movement of road freight and business trips to maintain the economic viability of the region. Priority freight routes will also limit trucks on suburban roads to movements necessary for delivery to local destinations.

Inter-modal terminals

Current limitations around road and rail access constrain throughput at the Acacia Ridge terminal to 500 000 containers per year, meaning capacity at Acacia Ridge may be exhausted as early as 2015[41].

The long-term limit to inter-modal capacity at Acacia Ridge and the Port of Brisbane's inter-modal terminal is an important factor for managing continued growth on rail, particularly for inter-regional and inter-state freight.

To accommodate expected growth and support greater use of rail, the freight terminal strategy proposed by the draft *Connecting SEQ 2031* includes:

- enhancements to Acacia Ridge, including catering for 1500-metre trains to provide an ultimate capacity of 750 000 containers
- expansion of facilities at Fisherman Islands, including the Brisbane inter-modal terminal to meet demand
- a new inter-modal terminal in Bromelton to supplement capacity at Acacia Ridge
- a potential new inter-modal terminal at Ebenezer to support the proposed southern freight rail corridor
- relocation of the existing constrained Moolabin terminal to allow this to be used for other purposes including stabling of passenger trains
- new rail terminal facilities to meet individual significant freight users (at Bromelton, Ebenezer, Australia TradeCoast and Swanbank)
- a potential new inter-modal terminal in the north coast area (between Caboolture and Landsborough) to service the Moreton Bay and Sunshine Coast councils and freight from North Queensland. A new inter-modal terminal to the north would also relieve pressure on the inner city rail network, freeing up capacity.

F2 Manage the strategic freight network

Road is the predominant mode of transporting freight in SEQ, accounting for 75% of long distance and 100% of intra-regional movements.

Policies to improve freight routes and protect road freight vehicles from chronic congestion caused by commuter traffic will assist the vital exchange of goods and materials for both intra-regional and export markets.

Actions to support the strategic freight network could potentially include providing freight vehicles with priority access to motorways through priority freight lanes on ramps and other 'managed motorway' actions.

The Connected and Managed Motorways project aims to upgrade and develop the region's existing motorways to form a complete and mature motorway standard network. This is a strategic project for developing the region's freight network and improving reliability for freight transport across the region. The details are described in the road network strategy (chapter 6).

Light freight movements

Movement of freight by light vehicles (small trucks and delivery vans) is important for the growth of local jobs and to meet 'just in time' delivery parameters for service all day.

With most light freight moved in the off-peak, there is a need to ensure the road network performs at a reasonable level of service between the daily am and pm peaks.

Another issue for light freight movement is conflicts with other users in busy activity centres. As activity in centres increases, competing demands for road kerb space will increase.

Ensuring light freight vehicles have ready access to delivery points will be a continuing challenge for the management of individual centres.

41 Queensland Government (Department of Transport and Main Roads) 2008 *South East Queensland Intermodal Freight Terminal Study*

Supporting principles for developing a freight network

F3 Develop facilities to allow more **containerised freight to be carried on rail**

F4 Ensure local roads are designed and managed to accommodate **'last mile' freight movements**

F5 **Protect land close to freight routes** for use by freight generating businesses

F6 **Protect existing and future freight terminal sites** from incompatible development including non-industrial and industrial uses generating traffic volumes that will compromise terminal access

F3 Containerised freight on rail

Historically, freight planning in SEQ restricted the role of rail to handling bulk products over long distances. The government will work with industry and terminal operators to improve long and short haul rail freight opportunities, to reduce the impact of road freight transport on the community and the environment.

Transport and Main Roads is investigating the potential for a rail shuttle service to operate between the Acacia Ridge inter-modal terminal and the Port of Brisbane. In the longer term a new site north of Caboolture could also be used for shuttle access to and from the port[42].

The use of a rail shuttle service would increase the number of rail freight movements to an intermodal terminal, then truck to its final destination. However, it would free up access through a constrained road network to the port as well as reduce congestion and loading delays at the port.

F4 'Last mile' freight movements

The region's strategic road freight network is comprised mainly of state controlled roads. These roads carry heavy freight transport including vehicles operating under the national higher mass limits. Local roads often carry freight traffic for the so called last mile – the final part of the journey. Last mile transport can raise two challenging issues:

- road pavement, bridges and structures may not be designed to accommodate heavy or higher mass limit vehicles
- heavy vehicles generally need to access local roads, town or city centres to provide delivery, creating safety and livability conflicts.

Constraints at the point of delivery such as restricted hours of operation, inadequate design of delivery docks (including adjacent manoeuvre area) and poor access from the road can reduce freight efficiency and make logistics more complex and difficult. This is a particular problem for food and beverage deliveries to supermarkets.

Many freight customers now expect time-critical deliveries each working day. In many cities around the world, policy makers are taking innovative steps to facilitate greater uptake of night deliveries to help reduce congestion, address adverse environmental impacts and improve road freight industry efficiency.

The Queensland Government will work with the Commonwealth Government, local governments and the road freight industry to ensure a response to last mile issues that does not compromise livability or transfer inappropriate costs to local budgets. This will include identifying regional freight routes and ensuring efficient freight movement and route compliance arrangements.

F5 Protect land close to freight routes

Strategic freight routes service only limited areas of the region. If some of the developable land areas served by routes are taken up with inappropriate uses that do not generate freight transport needs, the opportunity to reduce freight transport through suburban areas is lost.

As the region's freight task continues to grow it will be important to ensure that land use planning supports extended hours of operation in circumstances where impacts on local communities can be effectively managed.

The draft *Connecting SEQ 2031* establishes a strategic road and rail freight network to help advise the optimum locations for industry to establish. Sites with ready access to the interchanges on the motorway network are the best locations to locate industry. This ensures that reliable access to the port, inter-modal terminals and markets (internal and external to the region) can be provided.

The Queensland Government will work in partnership with local governments to identify future strategic freight routes in town plans and protect adjoining land use at strategic access points for industry and logistics land uses.

Formally recognising and publicising priority freight routes will be important for ensuring that vehicles use appropriate roads and corridors and to preserve corridors for the future.

F6 Protect existing and future freight terminal sites

The government will plan and secure sites for new terminals that are well located with road and rail access. The sites need to be recognised in state and local planning instruments to avoid incompatible land uses being approved that reduce effective freight operations and generate high levels of local traffic congestion.

The freight terminal strategy proposed by the draft *Connecting SEQ 2031* includes at least three new terminals which need to be planned, secured and protected in planning instruments as soon as possible:

- a new inter-modal terminal in the Bromelton state development area in parallel with upgrades of the interstate corridor to supplement capacity at Acacia Ridge
- a potential new inter-modal terminal at Ebenezer to support the proposed southern freight rail corridor and Inland Rail
- a potential new inter-modal terminal in the north coast area (between Caboolture and Landsborough).

42 Queensland Government (Queensland Department of Transport and Main Roads) 2009 draft *Rail Strategy for South East Queensland*

2031 strategic freight network

2031 rail freight network

A range of improvements to the rail network are proposed to enhance the role of rail freight including:

- new and upgraded inter-modal facilities (as discussed under F1)
- improvements to rail corridors to increase freight capacity
- new rail corridors and corridor sections with dedicated freight tracks to avoid conflicts with passenger rail.

A summary of the major enhancements in rail infrastructure needed by 2031 to support a major shift in the movement in freight from road to rail are outlined in table 8.3.

Rail network improvements will need to address conflicts between passenger and rail freight where they share the same corridor.

2031 road freight network

The strategic road network planning in *Chapter 8* of this draft *Connecting SEQ 2031* contains the details of how road freight facilities will be developed, and how the road system can be better managed to prioritise freight movements. The most important road freight projects and policies are:

- the Connected and Managed Motorways project which aims to complete a high speed, high-capacity road network across the region and manage its operation to ensure efficient 24-hour operation of freight vehicles
- protection of proposed priority road freight corridors as part of new development
- planning and funding multi-modal arterial roads within new communities to support local deliveries protect the capacity of the strategic motorway network to provide reliable, congestion-free longer distance movement of freight vehicles.

Strategic motorway and highway projects are also identified in detail in chapter 6. In particular there are four longer term projects of importance to the road freight network. These roads will service proposed new freight terminals and connect major industrial areas around the region. Planning and strategic protection of these corridors should be completed as a priority:

- Gateway southern extension to Jimboomba
- Southern infrastructure road corridor from Jimboomba to Ormeau
- Mt Lindesay Highway deviation west of Beaudesert to Bromelton.

Map 8.4 shows the 2031 strategic freight networks.

Table 8.3 – rail infrastructure to support rail freight

New and upgraded inter-modal facilities (as discussed above under regional freight gateways)	New or upgraded rail corridors
Full development of Acacia Ridge	**The interstate rail corridor:** loop extensions to allow for 1500-metre-long trains grade separate at-grade junctions to improve the flow of passenger and freight services development of Cross River Rail to allow Gold Coast commuter services to use new tracks and to allow dedicated use of the existing dual gauge track for freight transport between Acacia Ridge and the Port additional dual gauge passing loops on freight line from Yeerongpilly to Lytton Junction
Expansion of Fisherman Islands including the Brisbane Inter-modal Terminal	
New inter-modal terminal in the Bromelton state development area	
New inter-modal terminal at Ebenezer (in conjunction with proposed inland rail)	**The Western rail corridor:** track and bridge upgrades Corinda Junction grade separation to eliminate freight/passenger conflicts protect a corridor for a standard gauge non-electrified rail link from Rosewood to Kagaru (Southern Freight Rail Corridor) in conjunction with the inland freight rail line from Melbourne preserve rail corridor from Gowrie to Grandchester
Re-location of the existing constrained Moolabin terminal	
New rail terminal facilities at Ebenezer and Swanbank	
Potential new inter-modal terminal in the north coast area (between Caboolture and Landsborough)	**The North Coast rail line:** Caboolture to Nambour duplication and alignment improvement third track on the Exhibition branch additional track and freight refuges crossing loop extensions to allow 1,500 metre long trains

Map 8.4 – 2031 strategic freight network